

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-221369

(43)Date of publication of application : 17.08.1999

(51)Int.Cl.

A63H 9/00

A63H 3/36

(21)Application number : 10-041191

(71)Applicant : TAKARA CO LTD

(22)Date of filing : 06.02.1998

(72)Inventor : EJIMA TAKIO

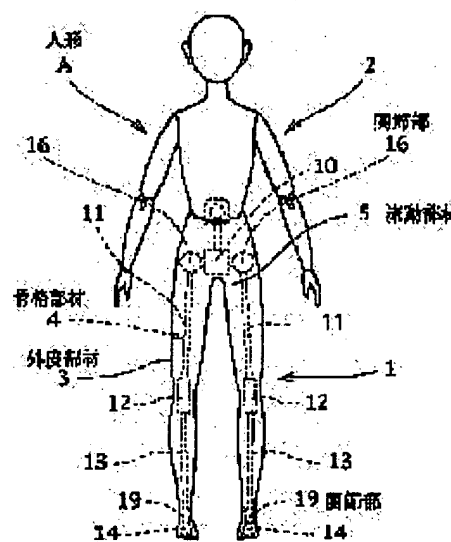
MATSUOKA HIROKAZU

(54) DOLL

(57)Abstract:

**PROBLEM TO BE SOLVED:** To make a frame member invisible and to perform deformation to a natural shape by forming the outer skin member of a doll body form by a flexible material and filling the frame member provided with a bendable joint part and a fluid member provided with viscosity in the inside.

**SOLUTION:** This doll A is constituted by uniting a conventional upper half body part 2 to a lower half body part 1 freely rotatably by a fixing shaft 15. The lower half body 1 is formed by filling the frame member 4 and the fluid member 5 to the inside of a hollow outer skin member 3 for which thermoplastic elastomer for indicating rubber elasticity at a normal temperature is injection- molded. The frame member 4 is constituted by connecting the frame members 11, 13 and 14 for imitating respective parts such as a waist part or the like respectively made of synthetic resin and a connection member 12 freely bendably by the joint parts 16-19. For the fluid member 5, a material such as starch syrup whose flow property is high at the time of injection and viscosity becomes high after the injection is used. Thus, the frame members 11-14 or the like are invisible from the outside and the deformation is freely performed when an external pressure is added from the outer side of the outer skin member 3.



BEST AVAILABLE COPY

---

**LEGAL STATUS**

[Date of request for examination] 01.02.2000

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3195579

[Date of registration] 01.06.2001

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

## CLAIMS

---

[Claim(s)]

[Claim 1] The doll characterized by having the following requirements.

(b) the bendable joint section is prepared in the forming-from envelope member [ which was formed in the bodily shape of a doll with the elastic material ], frame member [ which has been arranged inside this envelope member ], and flow member with which the interior of envelope member is filled up (b) above-mentioned frame member -- [claim 2]  
The doll according to claim 1 in which said flow member was formed for the material which has viscosity.

[Claim 3] The doll according to claim 1 said whose flow member is a starch syrup.

[Claim 4] The doll according to claim 1 which the flow member near the joint section moved to the above-mentioned thin-walled part when a thin-walled part was formed in said envelope member near the joint section of said frame member and a frame member was bent.

## DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the doll which prepared the frame member and the flow member which has viscosity in the interior of the envelope member formed with synthetic resin.

[0002]

[Description of the Prior Art] While an arm and a foot are formed possible [ bending ], making them deform and carrying out various postures conventionally, various clothes are dressed with, enjoyed, dressed with and changed, and doll play is accepted in the girl. As this doll is shown in drawing 6 (a), an arm 31 and the leg 32 are connected rotatable, further, an arm 31 is formed in idiosoma 30 possible [ bending ] from an elbow 33, and the leg 32 is formed in it possible [ bending ] from the knee 34.

[0003]

[Problem(s) to be Solved by the Invention] However, when an above-mentioned doll was dressed with clothes and the doll was a doll which imitated the girl, even if it dresses with long-sleeved dress and the joint parts of a shoulder or an elbow could prevent from exposing, when a skirt board was made to wear, it could not avoid, but as shown in drawing 6 (b), the structure of the joining segment of a knee 34 could not but be exposed, and exposure of a part in the knees could not but become an unnatural doll. Therefore, the doll which the structure of a joining segment does not expose is indicated by the Japanese-Patent-Application-No. No. 179603 [ 61 to ] official report. This doll prepares an elasticity resin layer for an arm or the leg in the interior of the envelope layer made of synthetic resin, and this envelope layer. Furthermore, the part at which it turns although the condition of having bent the condition of having laid underground and bent flexible core materials, such as a wire, inside the elasticity resin layer since the core material memorized the configuration can be held was not limited, and had the problem which there is a limitation also in deformation of an elasticity resin layer, and adopts the unnatural way of being straight.

[0004] This invention cancels the above-mentioned trouble, and the structure of a frame member is not in sight from an appearance, but let it be the technical problem to offer the doll which can be made to deform into a more natural form at the time of deformation.

[0005]

[Means for Solving the Problem] In order to solve said technical problem, the doll concerning this invention is characterized by having the following requirements.

(b) It is desirable that said flow member is formed for the material which is that the bendable joint section is prepared in the forming-from envelope member [ which was formed in the bodily shape of a doll with the elastic material ], frame member [ which has been arranged inside this envelope member ], and flow member with which the interior of envelope member is filled up (b) above-mentioned frame member and which has viscosity.

[0006] Moreover, said flow member may be a starch syrup.

[0007] And when a thin-walled part is formed in said envelope member near the joint section of said frame member and a frame member is bent, you may make it the flow member near the joint section move to the above-mentioned thin-walled part.

[0008]

[Embodiment of the Invention] In drawing 1 , Sign A shows the doll A concerning this invention, this doll A makes the upper-half-of-the-body section 2 of the conventional doll coalesce in the lower-half-of-the-body section 1 of the doll of this invention, and the lower-half-of-the-body section 1 of the above-mentioned doll consists of an envelope member 3 formed in midair, a frame member 4 arranged inside this envelope member 3, and a flow member 5 filled up with the interior of the above-mentioned envelope member 3.

[0009] The above-mentioned envelope member 3 forms the lower-half-of-the-body section 1 of a doll without a joint for the material which has elasticity as shown in drawing 2 (a), and opening of the up 1a is carried out, and it is formed so that the frame member 4 and the flow member 5 can be put in from this opening. This envelope member 3 should just carry out injection shaping of the elastomer (thermoplastic elastomer) which shows rubber elasticity in ordinary temperature without [ with an internal mold ] the upper and lower sides. In addition, the above-mentioned envelope member may not be limited to an elastomer, and may be synthetic resin, such as a vinyl chloride.

[0010] The above-mentioned frame members 4 are synthetic resin, such as plastics, as shown in drawing 2 (b). The base material 10 which imitated the hipbone, and the 1st frame member 11 which imitated the femur, It consists of a connection member 12 which imitated the patella, the 2nd frame member 13 which imitated the tibia, and the 3rd frame member 14 which imitated the foot, and the fixed shaft 15 fixed to the upper-half-of-the-body section 2 is connected with the upper part of the base material 10 which is a hipbone rotatable focusing on the axial center. And the end of the 1st frame member 11 which is a femur is connected with the both ends of the base material 10 rotatable through the joint section 16.

[0011] And the other end of the frame member 11 of the above 1st is connected with the background side of the tabular connection member 12 which imitated the patella rotatable through the joint section 17. Furthermore, the end of the 2nd frame member 13 which imitated the tibia is connected with the background side of this connection member 12 rotatable through the joint section 18, and the 3rd frame member 14 which imitated foot

bones is connected with the other end of this 2nd frame member 13 rotatable through the joint section 19.

[0012] The above-mentioned flow member 5 has a high fluidity, when pouring into an envelope member, materials, such as a starch syrup which becomes high [ viscosity ], are used, and after impregnation senses a certain amount of [ when the envelope member 3 with which this flow member (starch syrup) 5 was filled up is touched from an outside ] hardness, and when external pressure is moreover applied, it is constituted so that it may flow easily and the envelope member 3 may deform. In addition, the need may not be carried out but the viscosity of the above-mentioned flow member may not necessarily be grain, such as fine particles, such as liquids, such as water, wheat flour, and katakuriko, or a small bead of plastics, and sand.

[0013] And it inserts until it inserts the frame member 4 and the 3rd frame member 14 reaches at the tip of the envelope member 3, extending opening 3a of the upper part of the above-mentioned envelope member 3, as shown in drawing 2 (c) (refer to drawing 2 (d)). Next, the starch syrup 5 which became hot beforehand and raised the fluidity is poured in from opening 3a, and the inside of the envelope member 3 is filled up with a starch syrup 5. If restoration is completed, opening 3a will be closed so that a starch syrup 5 may not leak, and the upper half of the body 2 currently assembled beforehand is connected to a lower half of the body 1.

[0014] As mentioned above, when a doll is supplied since the frame member 4 is arranged inside the envelope member 3 according [ a lower half of the body 1 ] to synthetic resin and the interior of this envelope member 3 is filled up with the flow member 5, and the envelope member 3 is touched, a natural feel with which \*\* is also touching the body is acquired. And the condition of having bent from the joint section when the frame member 4 was bent and deformed, having not bent from an unnatural part, and moreover having deformed can be held certainly.

[0015] Next, drawing 3 forms the whole body except a head 20 by the envelope member 3 of synthetic resin, it extends opening 21a of a neck 21, inserts the frame member 4 in the interior of the envelope member 3, and fills up the interior of the envelope member 3 with the starch syrup poured in from opening 21a further.

[0016] Since all the joint sections do not seem to be shown in drawing 4 from an appearance according to this doll A, it can dress with the sleeveless shirt 25 and sleeveless miniskirt 26 which a shoulder, an elbow, and a knee expose, and can also dress with the swimming suit (not shown) which the lumbar part exposes, and the doll with which the object to wear is not limited can be realized.

[0017] Furthermore, drawing 5 (a) shows the leg at which it was made not to turn unnaturally, when the thickness of the envelope member 3 is changed and bent, and it makes thickness of trailer a of the sural region or a thigh thinner thickly [ other parts b ].

[0018] As shown in drawing 5 (b), when it bends from a part (joint sections 17 and 18) in the knees according to this toy, the flow member 5 of the part behind in the knees is pressed, and tends to move to other parts. Since it swells and deforms as it moves to the thin part a of the envelope member 3 which is easy to deform, and deformation arises to that part a, for example, muscles, such as sural region, rose although a pressure occurs toward an outside from the inside in the envelope member 3 at this time, a visual effect which \*\* also makes contract muscles and turned at it is acquired, and more natural deformation can be carried out.

[0019]

[Effect of the Invention] According to invention of claim 1, it can dress with the swimming suit which DRESS which a shoulder exposes, and the waist expose since a joint is not visible to a joint part from an appearance, and the object which dresses a doll with the joint section on clothes since there is no wrap need is not limited.

[0020] Moreover, since the unnatural way of being straight which bends from other than the joint section is not adopted when a doll toy is bent, since it is formed so that a frame member may bend from the joint section, the doll which can be made to deform into nature more can be offered.

[0021] According to invention of claim 2, on the elasticity of an envelope member, and the viscosity of a flow member, when a doll is touched, the feel of moderate softness is acquired.

[0022] According to invention of claim 3, while being able to form the doll of moderate hardness, even if a blemish may be attached to an envelope member, a trouble into which a flow member flows out of the part which the blemish attached is not generated.

[0023] According to invention of claim 4, when a doll is bent, a fluid will move in the interior of an envelope member, but a more natural deformation condition can be expressed so that an unnatural part cannot swell.

## TECHNICAL FIELD

[Field of the Invention] This invention relates to the doll which prepared the frame member and the flow member which has viscosity in the interior of the envelope member formed with synthetic resin.

## PRIOR ART

[Description of the Prior Art] While an arm and a foot are formed possible [ bending ], making them deform and carrying out various postures conventionally, various clothes are dressed with, enjoyed, dressed with and changed, and doll play is accepted in the girl. As this doll is shown in drawing 6 (a), an arm 31 and the leg 32 are connected rotatable, further, an arm 31 is formed in idiosoma 30 possible [ bending ] from an elbow 33, and the leg 32 is formed in it possible [ bending ] from the knee 34.

## EFFECT OF THE INVENTION

[Effect of the Invention] According to invention of claim 1, it can dress with the swimming suit which DRESS which a shoulder exposes, and the waist expose since a joint is not visible to a joint part from an appearance, and the object which dresses a doll with the joint section on clothes since there is no wrap need is not limited.

[0020] Moreover, since the unnatural way of being straight which bends from other than the joint section is not adopted when a doll toy is bent, since it is formed so that a frame member may bend from the joint section, the doll which can be made to deform into nature more can be offered.

[0021] According to invention of claim 2, on the elasticity of an envelope member, and the viscosity of a flow member, when a doll is touched, the feel of moderate softness is

acquired.

[0022] According to invention of claim 3, while being able to form the doll of moderate hardness, even if a blemish may be attached to an envelope member, a trouble into which a flow member flows out of the part which the blemish attached is not generated.

[0023] According to invention of claim 4, when a doll is bent, a fluid will move in the interior of an envelope member, but a more natural deformation condition can be expressed so that an unnatural part cannot swell.

## TECHNICAL PROBLEM

---

[Problem(s) to be Solved by the Invention] However, when an above-mentioned doll was dressed with clothes and the doll was a doll which imitated the girl, even if it dresses with long-sleeved dress and the joint parts of a shoulder or an elbow could prevent from exposing, when a skirt board was made to wear, it could not avoid, but as shown in drawing 6 (b), the structure of the joining segment of a knee 34 could not but be exposed, and exposure of a part in the knees could not but become an unnatural doll. Therefore, the doll which the structure of a joining segment does not expose is indicated by the Japanese-Patent-Application-No. No. 179603 [ 61 to ] official report. This doll prepares an elasticity resin layer for an arm or the leg in the interior of the envelope layer made of synthetic resin, and this envelope layer. Furthermore, the part at which it turns although the condition of having bent the condition of having laid underground and bent flexible core materials, such as a wire, inside the elasticity resin layer since the core material memorized the configuration can be held was not limited, and had the problem which there is a limitation also in deformation of an elasticity resin layer, and adopts the unnatural way of being straight.

[0004] This invention cancels the above-mentioned trouble, and the structure of a frame member is not in sight from an appearance, but let it be the technical problem to offer the doll which can be made to deform into a more natural form at the time of deformation.

## MEANS

---

[Means for Solving the Problem] In order to solve said technical problem, the doll concerning this invention is characterized by having the following requirements.

(b) It is desirable that said flow member is formed for the material which is that the bendable joint section is prepared in the forming-from envelope member [ which was formed in the bodily shape of a doll with the elastic material ], frame member [ which has been arranged inside this envelope member ], and flow member with which the interior of envelope member is filled up (b) above-mentioned frame member and which has viscosity.

[0006] Moreover, said flow member may be a starch syrup.

[0007] And when a thin-walled part is formed in said envelope member near the joint section of said frame member and a frame member is bent, you may make it the flow member near the joint section move to the above-mentioned thin-walled part.

[0008]

[Embodiment of the Invention] In drawing 1 , Sign A shows the doll A concerning this invention, this doll A makes the upper-half-of-the-body section 2 of the conventional doll

coalesce in the lower-half-of-the-body section 1 of the doll of this invention, and the lower-half-of-the-body section 1 of the above-mentioned doll consists of an envelope member 3 formed in midair, a frame member 4 arranged inside this envelope member 3, and a flow member 5 filled up with the interior of the above-mentioned envelope member 3.

[0009] The above-mentioned envelope member 3 forms the lower-half-of-the-body section 1 of a doll without a joint for the material which has elasticity as shown in drawing 2 (a), and opening of the up 1a is carried out, and it is formed so that the frame member 4 and the flow member 5 can be put in from this opening. This envelope member 3 should just carry out injection shaping of the elastomer (thermoplastic elastomer) which shows rubber elasticity in ordinary temperature without [ with an internal mold ] the upper and lower sides. In addition, the above-mentioned envelope member may not be limited to an elastomer, and may be synthetic resin, such as a vinyl chloride.

[0010] The above-mentioned frame members 4 are synthetic resin, such as plastics, as shown in drawing 2 (b). The base material 10 which imitated the hipbone, and the 1st frame member 11 which imitated the femur, It consists of a connection member 12 which imitated the patella, the 2nd frame member 13 which imitated the tibia, and the 3rd frame member 14 which imitated the foot, and the fixed shaft 15 fixed to the upper-half-of-the-body section 2 is connected with the upper part of the base material 10 which is a hipbone rotatable focusing on the axial center. And the end of the 1st frame member 11 which is a femur is connected with the both ends of the base material 10 rotatable through the joint section 16.

[0011] And the other end of the frame member 11 of the above 1st is connected with the background side of the tabular connection member 12 which imitated the patella rotatable through the joint section 17. Furthermore, the end of the 2nd frame member 13 which imitated the tibia is connected with the background side of this connection member 12 rotatable through the joint section 18, and the 3rd frame member 14 which imitated foot bones is connected with the other end of this 2nd frame member 13 rotatable through the joint section 19.

[0012] The above-mentioned flow member 5 has a high fluidity, when pouring into an envelope member, materials, such as a starch syrup which becomes high [ viscosity ], are used, and after impregnation senses a certain amount of [ when the envelope member 3 with which this flow member (starch syrup) 5 was filled up is touched from an outside ] hardness, and when external pressure is moreover applied, it is constituted so that it may flow easily and the envelope member 3 may deform. In addition, the need may not be carried out but the viscosity of the above-mentioned flow member may not necessarily be grain, such as fine particles, such as liquids, such as water, wheat flour, and katakuriko, or a small bead of plastics, and sand.

[0013] And it inserts until it inserts the frame member 4 and the 3rd frame member 14 reaches at the tip of the envelope member 3, extending opening 3a of the upper part of the above-mentioned envelope member 3, as shown in drawing 2 (c) (refer to drawing 2 (d)). Next, the starch syrup 5 which became hot beforehand and raised the fluidity is poured in from opening 3a, and the inside of the envelope member 3 is filled up with a starch syrup 5. If restoration is completed, opening 3a will be closed so that a starch syrup 5 may not leak, and the upper half of the body 2 currently assembled beforehand is connected to a lower half of the body 1.



[0014] As mentioned above, when a doll is supplied since the frame member 4 is arranged inside the envelope member 3 according [ a lower half of the body 1 ] to synthetic resin and the interior of this envelope member 3 is filled up with the flow member 5, and the envelope member 3 is touched, a natural feel with which \*\* is also touching the body is acquired. And the condition of having bent from the joint section when the frame member 4 was bent and deformed, having not bent from an unnatural part, and moreover having deformed can be held certainly.

[0015] Next, drawing 3 forms the whole body except a head 20 by the envelope member 3 of synthetic resin, it extends opening 21a of a neck 21, inserts the frame member 4 in the interior of the envelope member 3, and fills up the interior of the envelope member 3 with the starch syrup poured in from opening 21a further.

[0016] Since all the joint sections do not seem to be shown in drawing 4 from an appearance according to this doll A, it can dress with the sleeveless shirt 25 and sleeveless miniskirt 26 which a shoulder, an elbow, and a knee expose, and can also dress with the swimming suit (not shown) which the lumbar part exposes, and the doll with which the object to wear is not limited can be realized .

[0017] Furthermore, drawing 5 (a) shows the leg at which it was made not to turn unnaturally, when the thickness of the envelope member 3 is changed and bent, and it makes thickness of trailer a of the sural region or a thigh thinner thickly [ other parts b ].

[0018] As shown in drawing 5 (b), when it bends from a part (joint sections 17 and 18) in the knees according to this toy, the flow member 5 of the part behind in the knees is pressed, and tends to move to other parts. Since it swells and deforms as it moves to the thin part a of the envelope member 3 which is easy to deform, and deformation arises to that part a, for example, muscles, such as sural region, rose although a pressure occurs toward an outside from the inside in the envelope member 3 at this time, a visual effect which \*\* also makes contract muscles and turned at it is acquired, and more natural deformation can be carried out.

## DESCRIPTION OF DRAWINGS

---

[Brief Description of the Drawings]

[Drawing 1] The front view showing the configuration of a doll concerning this invention

[Drawing 2] (a) - (d) is the configuration of the above-mentioned doll, and the explanatory view of assembly.

[Drawing 3] The front view showing the configuration of other examples of a doll

[Drawing 4] The explanatory view which dressed the doll of an example besides the above with clothes

[Drawing 5] (a) and (b) are an important section sectional view explaining the operating state of another example of a doll.

[Drawing 6] (a) and (b) are the explanatory view of the conventional doll.

[Description of Notations]

3 Envelope Member

4 Frame Member

5 Flow Member

16 Joint Section

17 Joint Section

18 Joint Section  
19 Joint Section  
A Doll

(19)日本国特許庁 (J P)

(12) 公 開 特 許 公 報 (A)

(11)特許出願公開番号

特開平11-221369

(43)公開日 平成11年(1999) 8月17日

(51)Int.Cl.<sup>9</sup>

A 6 3 H 9/00  
3/36

識別記号

F I

A 6 3 H 9/00  
3/36

Q  
D  
G

審査請求 未請求 請求項の数4 F D (全 4 頁)

(21)出願番号 特願平10-41191

(22)出願日 平成10年(1998) 2月6日

(71)出願人 000132998

株式会社タカラ

東京都葛飾区青戸4丁目19番16号

(72)発明者 江島 多規男

東京都葛飾区青戸4丁目19番16号 株式会  
社タカラ内

(72)発明者 松岡 洋和

東京都葛飾区青戸4丁目19番16号 株式会  
社タカラ内

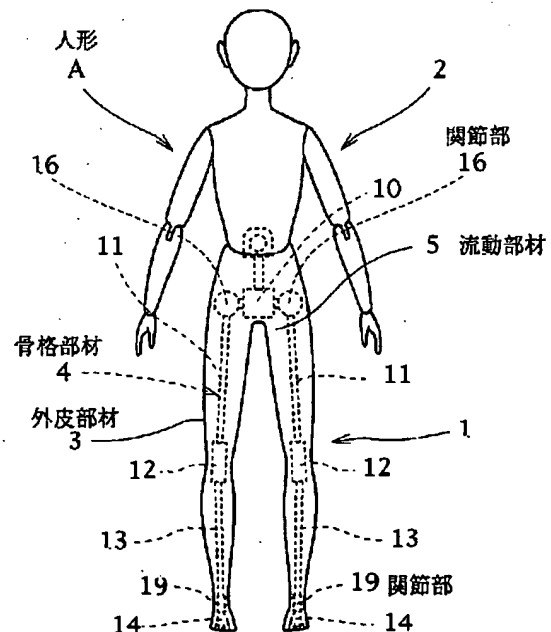
(74)代理人 弁理士 瀬川 幹夫

(54)【発明の名称】 人 形

(57)【要約】

【課題】外見からは骨格部材の構造が見えず、しかも、より自然な形に変形させることができる人形を提供すること。

【解決手段】伸縮性を有する素材によって人形の体形に形成された外皮部材3と、該外皮部材3の内部に配置された骨格部材4と、外皮部材3の内部に充填される流動部材5とから形成され、上記骨格部材4には折り曲げ可能な関節部16～19を設けた。



## 【特許請求の範囲】

【請求項1】 以下の要件を備えたことを特徴とする人形。

(イ) 伸縮性のある素材によって人形の体形に形成された外皮部材と、該外皮部材の内部に配置された骨格部材と、外皮部材の内部に充填される流動部材とから形成されていること

(ロ) 上記骨格部材には折り曲げ可能な関節部が設けられていること

【請求項2】 前記流動部材が粘性を有する素材で形成された請求項1記載の人形。

【請求項3】 前記流動部材が水飴である請求項1記載の人形。

【請求項4】 前記骨格部材の関節部近傍の前記外皮部材には薄肉部を形成し、骨格部材を折り曲げた時には、関節部近傍の流動部材が上記薄肉部に移動するようにした請求項1記載の人形。

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、合成樹脂によって形成された外皮部材の内部に骨格部材と粘性を有する流動部材とを設けた人形に関する。

【0002】

【従来の技術】従来、腕部や足部が折り曲げ可能に形成され変形させて様々な姿勢をさせるとともに、様々な衣服を着せて楽しむ着せ変え人形遊びが女の子に受け入れられている。この人形は、図6(a)に示すように、胴体部30に腕部31と脚部32とが回動可能に連結され、さらに腕部31は肘33から折り曲げ可能に形成され、脚部32は膝34から折り曲げ可能に形成されているものである。

【0003】

【発明が解決しようとする課題】しかしながら、上述の人形に衣服を着せた場合は、人形が女の子を模した人形であれば、長袖の服を着せて肩や肘の関節部分が露出しないようにすることはできても、スカートを履かせた場合は膝の部分の露出は避けることはできず、図6(b)に示すように膝34の連結部分の構造が露出し、不自然な人形にならざるを得なかった。そのため、連結部分の構造が露出しない人形が、特願昭61-179603号公報に開示されている。この人形は、腕部又は脚部を合成樹脂製の外皮層と、この外皮層の内部に軟質樹脂層を設け、さらに、軟質樹脂層の内部に針金等の可撓性芯材を埋設したものであり、折り曲げた状態は芯材が形状を記憶するので曲げた状態は保持することはできるが曲がる部分は限定されないし、軟質樹脂層の変形にも限界があり不自然な曲がり方をしてしまう問題があった。

【0004】本発明は上記問題点を解消し、外観からは骨格部材の構造が見えず、変形時には、より自然な形に変形させることができる人形を提供することをその課題

とする。

【0005】

【課題を解決するための手段】前記課題を解決するため、本発明に係る人形は、以下の要件を備えたことを特徴とする。

(イ) 伸縮性のある素材によって人形の体形に形成された外皮部材と、該外皮部材の内部に配置された骨格部材と、外皮部材の内部に充填される流動部材とから形成されていること

(ロ) 上記骨格部材には折り曲げ可能な関節部が設けられていること

なお、前記流動部材が粘性を有する素材で形成されていることが好ましい。

【0006】また、前記流動部材が水飴であってもよい。

【0007】そして、前記骨格部材の関節部近傍の前記外皮部材には薄肉部を形成し、骨格部材を折り曲げた時には、関節部近傍の流動部材が上記薄肉部に移動するようにしてもかまわない。

【0008】

【発明の実施の形態】図1において符号Aは、本発明に係る人形Aを示し、この人形Aは本発明の人形の下半身部1に、従来の人形の上半身部2を合体させたものであり、上記人形の下半身部1は中空に形成された外皮部材3と、この外皮部材3の内部に配置された骨格部材4と、上記外皮部材3の内部を充填する流動部材5とで構成されているものである。

【0009】上記外皮部材3は、図2(a)に示すように、伸縮性を有する素材で人形の下半身部1を縫ぎ目なく形成し上部1aは開口され、この開口部から骨格部材4と流動部材5とを入れることができるように形成されている。この外皮部材3は常温でゴム弾性を示すエラストマー（熱可塑性エラストマー）を内部型のある上下抜きでインジェクション成形すればよい。なお、上記外皮部材は、エラストマーに限定されるのではなく、塩化ビニル等の合成樹脂であってもかまわない。

【0010】上記骨格部材4は、図2(b)に示すように、プラスチック等の合成樹脂で、腰骨を模した基部材10と、大腿骨を模した第1の骨格部材11と、膝蓋骨を模した連結部材12と、脛骨を模した第2の骨格部材13と、足部を模した第3の骨格部材14とから構成され、腰骨である基部材10の上部には上半身部2に固定される固定軸15が軸心を中心に回動可能に連結されている。そして、基部材10の両端には大腿骨である第1の骨格部材11の一端が関節部16を介して回動可能に連結されている。

【0011】そして、上記第1の骨格部材11の他端は膝蓋骨を模した板状の連結部材12の裏側面に関節部17を介して回動可能に連結され、さらに、この連結部材12の裏側面には脛骨を模した第2の骨格部材13の一

端が関節部18を介して回動可能に連結され、この第2の骨格部材13の他端には足骨を模した第3の骨格部材14が関節部19を介して回動可能に連結されている。

【0012】上記流動部材5は外皮部材に注入する時には流動性が高く、注入後は粘性の高くなる水飴等の素材が使用され、この流動部材(水飴)5が充填された外皮部材3を外側から触れた時に、ある程度の固さを感じ、しかも外圧を加えた時には容易に流動して外皮部材3が変形するように構成されている。なお、上記流動部材は必ずしも粘性は必要とはされず、水等の液体、小麦粉、片栗粉等の粉体又はプラスチックの小さなビーズ、砂等の粒体であってもよい。

【0013】そして、図2(c)に示すように、上記外皮部材3の上部の開口部3aを拡開しながら骨格部材4を挿入し、第3の骨格部材14が外皮部材3の先端に到達するまで挿入する(図2(d)参照)。次に、予め熱して流動性を高めた水飴5を開口部3aから注入し、外皮部材3内を水飴5で充填する。充填が完了したら水飴5が漏れないように開口部3aを塞ぎ、予め組み立ててある上半身2を下半身1に接続する。

【0014】上述のように、人形は下半身1が合成樹脂による外皮部材3の内部に骨格部材4が配置され、この外皮部材3の内部が流動部材5で充填されているので、柔軟性があり外皮部材3に触れた場合には、恰も人体に触れているような自然な感触が得られる。そして、骨格部材4を折り曲げて変形した場合には関節部から曲がり、不自然な部分から曲がることはなく、しかも、変形した状態を確実に保持することができる。

【0015】次に、図3は、頭部20を除く全身を合成樹脂の外皮部材3で形成し、骨格部材4を首部21の開口部21aを拡開して外皮部材3の内部に挿入し、さらに、開口部21aから注入した水飴で外皮部材3の内部を充填したものである。

【0016】この人形Aによれば、図4に示すように、外観からはすべての関節部が見えないので、肩、肘、膝の露出するノースリーブのシャツ25やミニスカート26を着せることができるし、腰部が露出する水着(図示せず)を着せることもでき、着る物が限定されることのない人形を実現することができる。

【0017】さらに、図5(a)は、外皮部材3の厚さを変えて、曲げた時に不自然に曲がらないようにした脚部を示すもので、ふくらはぎや太もの後ろ部分aの肉厚を他の部分bの肉厚より薄くしたものである。

【0018】この玩具によれば図5(b)に示すように膝の部分(関節部17、18)から曲げた時に、膝の後ろの部分の流動部材5は圧迫されて他の部分に移動しよ

うとする。この時、外皮部材3に内側から外側に向かって圧力が発生するが、変形しやすい外皮部材3の薄い部分aに移動し、その部位aに変形が生じ、例えば、ふくらはぎ等の筋肉が盛り上がったように膨らんで変形するので、恰も筋肉を収縮させて曲がったような視覚効果が得られ、より自然な変形をさせることができる。

【0019】

【発明の効果】請求項1の発明によれば、外観からは関節部分に継ぎ目が見えないので、肩が露出するドレスや腰が露出する水着等を着せることができ、関節部を衣服で覆う必要がないので人形に着せる物が限定されることがない。

【0020】また、骨格部材が関節部から曲がるように形成されているので、人形玩具を曲げた時に、関節部以外から曲がるような不自然な曲がり方をすることがないので、より自然に変形させることができる人形を提供することができる。

【0021】請求項2の発明によれば、外皮部材の弾性と流動部材の粘性とで、人形をさわった時に適度な柔らかさの感触が得られる。

【0022】請求項3の発明によれば、適度な固さの人形を形成することができるとともに、外皮部材に傷がつくようなことがあっても、傷がついた部分から流動部材が流出するようなトラブルは発生しない。

【0023】請求項4の発明によれば、人形を曲げた時、外皮部材の内部を流体が移動することになるが、不自然な部分がふくらむようなことがなく、より自然な変形状態を表現することができる。

【図面の簡単な説明】

【図1】本発明に係る、人形の構成を示す正面図

【図2】(a)～(d)は、上記人形の構成及び組立の説明図

【図3】人形の他の例の構成を示す正面図

【図4】上記他の例の人形に衣服を着せた説明図

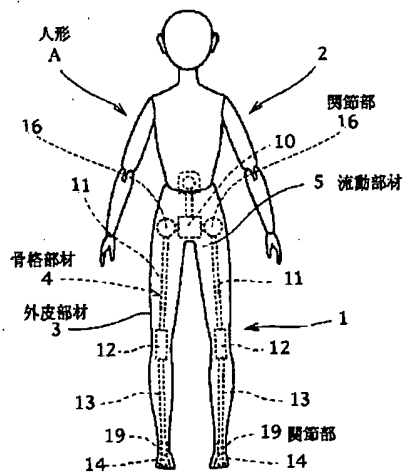
【図5】(a)(b)は人形の別の例の作動状態を説明する要部断面図

【図6】(a)(b)は従来の人形の説明図

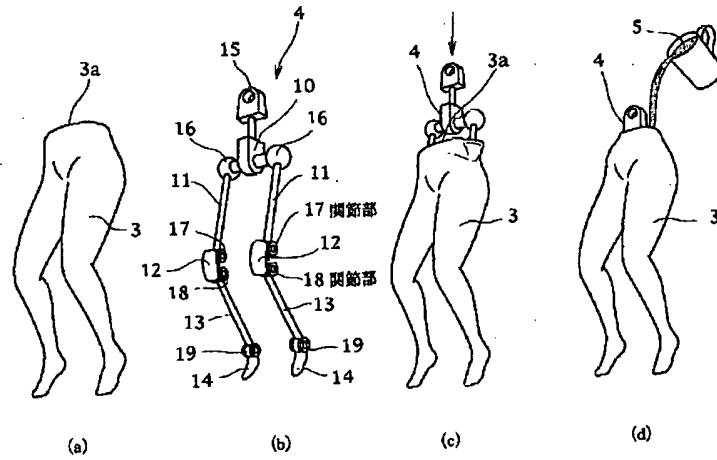
【符号の説明】

- 3 外皮部材
- 4 骨格部材
- 5 流動部材
- 16 関節部
- 17 関節部
- 18 関節部
- 19 関節部
- A 人形

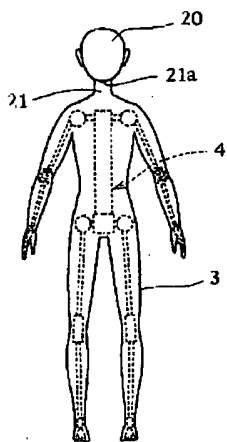
【図1】



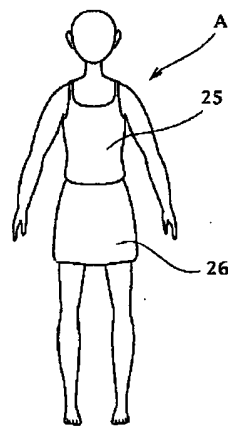
【図2】



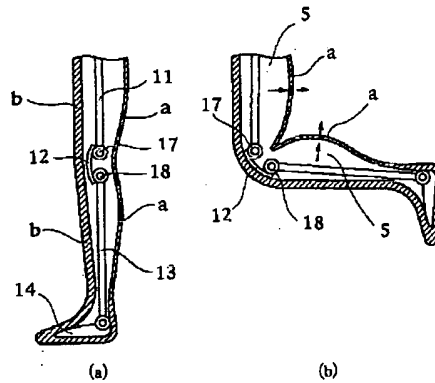
【図3】



【図4】



【図5】



【図6】

